



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**Region 1**

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BOSTON, MA 02109-3912**

May 25, 2016

Kimberly Damon-Randall  
Assistant Regional Administrator  
Protected Resources Division  
National Marine Fisheries Service  
55 Great Republic Drive  
Gloucester, MA 01930

Re: Reissuance of the NPDES Permit for the Pilgrim Nuclear Power Station,  
Plymouth, Massachusetts, Permit No. MA0003557- Endangered Species Act  
Correspondence

Dear Assistant Regional Administrator Damon-Randall,

The U.S. Environmental Protection Agency, Region I, New England (EPA) is preparing to reissue the NPDES permit for the Pilgrim Nuclear Power Station (PNPS) located on the western shore of Cape Cod Bay in Plymouth, MA. The Fact Sheet and Draft Permit were placed on public notice on May 18, 2016, and are available for review at: [https://www3.epa.gov/region1/npdes/draft\\_permits\\_listing\\_ma.html](https://www3.epa.gov/region1/npdes/draft_permits_listing_ma.html). The comment will close on July 18, 2016. The Draft Permit is intended to replace the existing NPDES permit in governing the discharges from the Station. Reissuance of the NPDES permit for this facility will extend authorization for the discharges listed above for five years from the effective date of the permit.

This letter is to request Endangered Species Act (ESA) concurrence from your office for the reissuance of the NPDES permit for PNPS. We have made the determination that the proposed activity may affect, but is not likely to adversely affect, any species listed as threatened or endangered or Critical Habitat designated for North Atlantic Right Whale by NMFS under the ESA of 1973, as amended. Our supporting analysis is provided below.

**Proposed Project**

Pilgrim Nuclear Power Station (PNPS, the permittee) is a 670 megawatt (MW) electric generating facility adjacent to Cape Cod Bay in Plymouth, MA (lat. 41.93999, long. -70.5746). The facility discharges wastewater from a combination of once-through cooling water, traveling screen washwater, treated process wastewaters, miscellaneous low volume wastewaters, and storm water.



Seawater is withdrawn from Cape Cod Bay through an intake embayment formed by two breakwaters. PNPS, like all facilities that utilize a natural waterbody for cooling purposes, can impact aquatic resources primarily through the entrainment of small organisms (e.g., early life stages of fish and macroinvertebrates) into the cooling water system, impingement of larger organisms on the intake screens, and through the discharge of effluent to Cape Cod Bay. The impacts from each of these sources are discussed in detail in the Fact Sheet accompanying the Draft NPDES permit.

On October 13, 2015, citing poor market conditions, reduced revenues and increased operational costs, Entergy announced that it would shut PNPS down, essentially terminating electricity generation at the facility, no later than June 1, 2019. In a press release of April 14, 2016, Entergy announced that it would be refueling the Pilgrim facility in 2017 to continue providing electricity and will be ceasing operations on May 31, 2019. On December 18, 2015, the Independent System Operator of New England (ISO-NE) accepted Entergy's Non-Price Retirement request for the facility. Because Entergy has advised EPA that some discharges and water withdrawals will continue after the cessation of electricity generation, the draft permit reflects post-shutdown operations and discharges as appropriate.

The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act ("CWA"), 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00 and State Surface Water Quality Standards ("WQS") at 314 CMR 4.00. In addition, the draft permit includes thermal effluent limitations for temperature and rise in temperature, or "delta T." The thermal component of the facility's discharge is subject to effluent limitations under CWA § 301, 33 U.S.C. § 1311, and WQS that provide that temperature of a class SA water "[s]hall not exceed 85°F (29.4°C) nor a maximum daily mean of 80°F (26.7°C), and the rise in temperature due to a discharge shall not exceed 1.5°F (0.8°C)." 314 CMR 4.05(4)(a)(2)(a). The permittee has filed a request for alternative, less stringent effluent limitations for the thermal component of the discharge. Consistent with CWA § 316(a) and 314 CMR 4.05(4)(a)(2)(c), the draft permit contains some thermal limits that are less stringent than WQS, but which EPA and MassDEP have determined nonetheless assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the water body receiving the thermal discharge. These effluent limits are an effluent temperature of 102°F and delta Ts of 32 °F pre-shutdown and 3°F post-shutdown for Outfall 001 (cooling water) and an effluent temperature of 115°F for Outfall 002 (thermal backwash water). These effect of these limits on listed species are described below.

### **Description of the Action Area**

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 C.F.R. §402.02). PNPS is located on the northwest shore of Cape Cod Bay in the Town of Plymouth, MA, as shown in Figure 1. Cape Cod Bay is a circular embayment of the Atlantic Ocean off the coast of eastern Massachusetts. All discharges from PNPS discharge to Cape Cod Bay, which is designated as Class SA High Quality Waters by the MassDEP under the Commonwealth of Massachusetts Surface Water Quality Standards (SWQS). *See* 314 CMR 4.06(4).



## NMFS Listed Species (and Critical Habitat) in the Action Area

As the federal agency charged with authorizing the discharges from this facility, EPA has reviewed available habitat information developed by the Services to see if one or more of the federal endangered or threatened species of fish, wildlife, or plants may be present within the influence of the discharge. The following federally listed species may potentially inhabit (seasonally) Cape Cod Bay in the area of the facility discharge:

<u>Common Name</u>	<u>Species Name</u>	<u>Status</u>
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Endangered
Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Threatened
North Atlantic Right Whale	<i>Eubalaena glacialis</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Endangered
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Endangered
Loggerhead Sea Turtle	<i>Caretta caretta</i>	Threatened
Green Sea Turtle	<i>Chelonia mydas</i>	Threatened*

\*Population of Green Sea Turtle present in action area listed as threatened. Breeding populations in Florida and Mexico's Pacific Coast listed as Endangered.

### Atlantic Sturgeon

The Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) is a species of sturgeon distributed along the eastern coast of North America from Hamilton Inlet, Labrador, Canada to Cape Canaveral, Florida, USA. NMFS has delineated U.S. populations of Atlantic sturgeon into five distinct population segments (DPSs): the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs. *See* 77 Fed. Reg. 5880 (Feb. 6, 2012); 77 Fed. Reg. 5914 (Feb. 6, 2012). NMFS has listed the Gulf of Maine DPS of Atlantic sturgeon as a threatened species and extended the prohibitions under section 9(a)(1) of the ESA to this DPS. *See* 78 Fed. Reg. 69,310 (Nov. 19, 2013). The primary factors responsible for the decline of the Gulf of Maine DPS include the destruction, modification, or curtailment of habitat due to poor water quality, dredging and the presence of dams; overutilization due to unintended catch of Atlantic sturgeon in fisheries; lack of regulatory mechanisms for protecting the fish; and other natural or manmade factors including loss of fish through vessel strikes. *See* 77 Fed. Reg. at 5905.

After emigration from the natal estuary, subadults and adults travel within the marine environment, typically in nearshore waters less than 50 meters in depth characterized by gravel and sand substrate, including Massachusetts Bay (Stein *et al.* 2004). According to the *Status Review of Atlantic Sturgeon*, Atlantic Sturgeon Status Review Team Report to National Marine Fisheries Service, Northeast Regional Office (Feb. 23, 2007 p. 61):

Stein *et al.* (2004b) examined bycatch of Atlantic sturgeon using the NMFS sea sampling/observer 1989-2000 database. The bycatch study identified that the majority of recaptures occurred in five distinct coastal locations (Massachusetts Bay, Rhode Island, New Jersey, Delaware, and North Carolina) in isobaths ranging from 10 to 50 m, although sampling was not randomly



distributed...Fisheries conducted within rivers and estuaries may intercept any life stage, while fisheries conducted in the nearshore and ocean may intercept migrating juveniles and adults.

Based on the Status Review document and the information summarized by NMFS in its 2012 consultation, subadult and adult Atlantic sturgeon may be present in nearshore habitat in Cape Cod Bay. As NMFS provides, the Kennebec and Hudson rivers are the closest rivers to Pilgrim in which Atlantic sturgeon are known to spawn. Given the distance from those rivers to Cape Cod Bay, early life stages (eggs, larvae, and juvenile) of Atlantic sturgeon are not likely to occur in the action area.

#### North Atlantic Right Whale

The Northern right whale (*Eubalaena glacialis*) was listed as endangered in 1970 prior to the passage of the ESA. In 2006, the North Atlantic, North Pacific, and southern right whale were listed as three separate endangered species under the ESA based on their unique lineages. See 71 Fed. Reg. 77,704 (Dec. 27, 2006); 73 Fed. Reg. 12,024 (Mar. 6, 2008). The North Atlantic right whale primarily occurs in coastal or shelf waters with calving and nursery areas off the Southeastern U.S. and summer feeding grounds extending from New England waters north to the Bay of Fundy and Scotian Shelf (NMFS 2005). The distribution of right whales seems linked to the distribution of their principal zooplankton prey, calanoid copepods (Baumgartner and Mate 2005; Waring et al. 2012). The largest threat to recovery of the population is ship collisions and entanglements. Other threats include habitat degradation, noise, contaminants, and climate and ecosystem change (NMFS 2005).

New England waters include important foraging habitat for right whales and individuals have been sighted off Massachusetts in most months (Watkins and Schevill 1982, Winn et al. 1986, Hamilton and Mayo 1990). Peak occurrence falls between February and May, particularly in Cape Cod and Massachusetts bays (Hamilton and Mayo 1990, Payne et al. 1990). In recent years, however, right whales have been sighted on Jeffreys and Cashes Ledges, Stellwagen Bank, and Jordan Basin during December to February (Khan et al. 2011 and 2012). On multiple days in December 2008, congregations of more than 40 individual right whales were observed in the Jordan Basin area of the Gulf of Maine, leading researchers to believe this may be a wintering ground (NOAA 2008). Calving is known to occur in the winter months in coastal waters off of Georgia and Florida (Kraus et al. 1986). Right whale sightings from May 1997 to the present have been mapped (<http://www.nefsc.noaa.gov/psb/surveys/>). Since the last consultation in May 2012, there have been multiple sightings of right whales in the action area (particularly spring of 2013 and 2015), including sighting of a mother and calf pair sighted near the northern embayment wall in January 2013 and south of the facility in April 2013. In addition, a large aggregation of North Atlantic right whales spotted in western Cape Cod Bay (near PNPS) in early April of 2013 prompted MassDMF to issue an advisory for vessel operators to proceed with caution when traveling in that area (Attachment C to the fact sheet, p.9).



## Humpback whale

The humpback whale (*Megaptera novaeangliae*) has been listed as endangered under the ESA since its passage in 1973. Humpback whales inhabit all major ocean basins from the equator to subpolar latitudes. With the exception of the northern Indian Ocean population, they generally follow a predictable migratory pattern in both southern and northern hemispheres, feeding during the summer in the higher near-polar latitudes and migrating to lower latitudes in the winter where calving and breeding take place (Perry et al. 1999). During the summer months, humpback whales foraging in the Gulf of Maine visit Stellwagen Bank and the waters of Massachusetts and Cape Cod bays. Small numbers of individuals may be present in this area, including the waters of Stellwagen Bank, year-round. They feed on small schooling fishes, particularly sand lance and Atlantic herring, targeting fish schools and filtering large amounts of water for their associated prey. Humpback whales may also feed on euphausiids (krill) as well as on capelin (Waring et al. 2010; Stevick et al. 2006). In winter, whales from waters off New England, Canada, Greenland, Iceland, and Norway migrate to mate and calve primarily in the West Indies, where spatial and genetic mixing among these groups occurs (Waring et al. 2014). Acoustic recordings made on Stellwagen Bank National Marine Sanctuary in 2006 and 2008 detected humpback song in almost all months, including throughout the winter (Vu et al. 2012). Changes in humpback whale distribution in the Gulf of Maine have been found to be associated with changes in herring, mackerel, and sand lance abundance associated with local fishing pressures (Stevick et al. 2006; Waring et al. 2014). Shifts in relative finfish species abundance correspond to changes in observed humpback whale movements (Stevick et al. 2006). According to NMFS, the majority of humpback whale sightings are in the eastern portion of Cape Cod Bay with few sightings in the action area.

As with other large whales, the major known sources of anthropogenic mortality and injury of humpback whales occur from fishing gear entanglements and ship strikes. Humpback whales, like other baleen whales, may also be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources resulting from a variety of activities including fisheries operations, vessel traffic, and coastal development.

## Fin Whale

The fin whale (*Balaenoptera physalus*) has been listed as endangered under the ESA since its passage in 1973. The fin whale is widely distributed in the North Atlantic and occurs from the Gulf of Mexico and Mediterranean Sea northward to the edges of the Arctic ice pack (NMFS 2010). Off the eastern U.S., fin whales are centered along the 100 m isobaths but with sightings well spread out over shallower and deeper water, including submarine canyons along the shelf break (Kenney and Winn 1987; Hain et al. 1992). Hain et al. (1992) identified Jeffrey's Ledge as a primary feeding area. Fin whales prey on both pelagic crustaceans and schooling fish (NMFS 2010). The overall distribution may be based on prey availability, as this species preys opportunistically on both invertebrates and fish (Watkins et al. 1984).



Like right and humpback whales, fin whales are believed to use North Atlantic waters primarily for feeding, and more southern waters for calving. This species is commonly found from Cape Hatteras northward. During the 1978-1982 aerial surveys, fin whales accounted for 24% of all cetaceans and 46% of all large cetaceans sighted over the continental shelf between Cape Hatteras and Nova Scotia (Waring et al. 2014). Underwater listening systems have also demonstrated that the fin whale is the most acoustically common whale species heard in the North Atlantic (Clark 1995). The single most important area for this species appeared to be from the Great South Channel, along the 50 meter isobath past Cape Cod, over Stellwagen Bank, and past Cape Ann to Jeffreys Ledge (Hain et al. 1992).

The major known sources of anthropogenic mortality and injury of fin whales include entanglement in commercial fishing gear and ship strikes. Pollutants do not appear to be a major direct threat to fin whale populations, although the loss of prey base due to pollution and climate change could potentially impact populations (NMFS 2010).

### Sea Turtles

The loggerhead sea turtle (*Caretta caretta*) was listed as endangered through its range on July 28, 1978. Loggerhead turtles inhabit the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. Nesting occurs from Texas to Virginia; eggs and hatchlings are not likely to occur in the action area (NMFS and USFWS 2008). Post-hatchling loggerheads enter neritic waters along the continental shelf and before transitioning to the oceanic zone, where juveniles are found particularly around the Azores and Madeira in the North Atlantic (Bolten 2003). Following the oceanic stage, juvenile loggerheads transition to the neritic zone where they are common along the eastern U.S. seaboard in continental shelf waters from Cape Cod Bay, MA to the Gulf of Mexico feeding primarily on benthic invertebrates. Adult, non-nesting loggerheads prefer shallow water habitats and are common in large, open bays (e.g., Florida Bay and Chesapeake Bay) and offshore waters from New York through the Gulf of Mexico (Schroeder et al. 2003). Major threats to loggerhead turtles include commercial fishery bycatch, legal and illegal harvest, habitat degradation (especially of nesting beaches), and predation by native and exotic species (NMFS and USFWS 2008).

The leatherback sea turtle (*Dermochelys coriacea*) has been listed as endangered through its range since the passage of the ESA in 1973. Adult leatherbacks are highly migratory and are believed to be the most pelagic of all sea turtles. There is little information about the habitat requirements and distribution of adult leatherbacks beyond limited knowledge of nesting beaches, including those in the Gulf of Mexico and U.S. Caribbean islands (e.g., the U.S. Virgin Islands and Puerto Rico) (NMFS and USFWS 1992). Eggs and hatchlings are not likely to occur in the action area. Periodic sightings of leatherbacks have occurred in New England waters, particularly around Cape Cod during summer months (NMFS and USFWS 1992). One study tracking the movements of leatherback turtles captured off the coast of Cape Cod indicated that several of the tagged individuals remained near the Northeast U.S. continental shelf (and in Massachusetts Bay) during summer and fall before migrating to tropical or sub-tropical habitat (Dodge et al. 2014).



The green sea turtle (*Chelonia mydas*) was listed as endangered for coastal breeding colonies in Florida and Mexico's Pacific coast and threatened through the rest of its range in 1978. The green turtle occurs in tropical and sub-tropical waters worldwide; in Atlantic waters green turtles are found around the U.S. Virgin Islands, Puerto Rico, and the continental U.S. from Texas to Massachusetts. Primary nesting beaches occur in east central and southeast Florida, and in smaller numbers in Puerto Rico and the U.S. Virgin Islands. Eggs and hatchlings are not likely to occur in the action area. After transitioning from pelagic habitat to shallow, benthic feeding grounds, herbivorous juvenile and adult green turtles forage in pastures of seagrasses and/or algae but can also be found over coral reefs, warm reefs, and rocky bottoms (NMFS and USFWS 1991). Primary threats include degradation of nesting habitat, dredging and coastal development, pollution, seagrass bed degradation, entanglement in commercial fishing gear, and fishery bycatch (NMFS and USFWS 1991).

The Kemp's Ridley sea turtle (*Lepidochelys kempii*) has been listed as endangered through its range since the passage of the ESA in 1973. The species has a relatively limited distribution with nesting beaches primarily located in the western Gulf of Mexico; eggs and hatchlings are not likely to occur in the action area. Once hatchlings emerge, they swim offshore into deeper waters where some juveniles may be transported to the Northwest Atlantic by the Gulf Stream (NMFS et al. 2011). Juveniles in the Northwest Atlantic transition into shallow coastal habitats (including bays and sounds) extending from Florida to New England (Morreale et al. 2007). Both adult and juvenile Kemp's ridley turtle may use New England waters from June through October as seasonal feeding grounds with crabs as its primary prey (NFMS et al. 2011). Migration from coastal foraging areas to overwintering sites is likely triggered by temperature declines. By late fall, most are found south of Chesapeake Bay towards North Carolina (NMFS et al. 2011). Major threats to the recovery of the Kemp's Ridley sea turtle include the degradation of nesting habitat and commercial fishery bycatch (NMFS et al. 2011).

#### Northern Right Whale Critical Habitat

Critical habitat for right whales was initially designated for most of Cape Cod Bay (CCB), Great South Channel (GSC), and coastal Florida and Georgia (outside of the action area). The habitat features identified in this designation include copepods (prey), and oceanographic conditions created by a combination of temperature and depth that are conducive for foraging, calving and nursing. See 59 Fed. Reg. 28,805 (June 3, 1994). In its 2012 ESA Consultation, NMFS determined that, within critical habitat, the thermal plume is no longer detectable and that any pollutants discharged from PNPS would be fully mixed and no longer detectable from background levels. Therefore, there would be no direct effects to critical habitat. See 2012 ESA Consultation letter, 30.

The NMFS has recently expanded the 1994 critical habitat designation for the population of right whales in the North Atlantic. See 81 Fed. Reg. 4,838 (Jan. 27, 2016) The critical habitat, which contains physical and biological features of foraging habitat that are essential to the conservation of the North Atlantic right whale, encompasses a large area within the Gulf of Maine and Georges Bank region, including Cape Cod Bay



and Massachusetts Bay and deep underwater basins (Wilkinson, Georges, and Jordan Basins). The area incorporates state waters and “includes the large embayments of Cape Cod Bay and Massachusetts Bay but does not include inshore areas, bays, harbors, and inlets.” 81 Fed. Reg. 4,862. The newly expanded designated critical habitat does not include the inshore location of PNPS’ CWIS and outfalls, due to the absence or rarity of foraging right whales and the likelihood that dense aggregations of preferred prey are not present in these areas, even as NMFS recognizes that there has been an increase in the concentration of right whales in Western Cape Cod Bay in recent years. NMFS received a comment requesting special management considerations of impacts associated with coastally-located industrial electric generators (including PNPS) during the comment period for the proposed critical habitat. NMFS responded that, while some copepods are likely lost to entrainment at PNPS, “the essential feature of dense aggregations of late stage *C. finmarchicus* does not require special management considerations or protection due to entrainment by the PNPS...” 81 Fed. Reg. 4,855-56. EPA has considered direct and indirect effects to North Atlantic right whales below.

### **Effects Determination**

Effects of this action on listed species of whales and turtles and their critical habitat primarily include impingement and entrainment of potential prey and effects to habitat, including the discharge of heated effluent. Effects of this action on Atlantic sturgeon include impingement, the discharge of heated effluent, and may also include direct impacts of the discharge of pollutants from PNPS. To date there has been no reported take of Atlantic sturgeon or sea turtles from impingement at PNPS.

### **Heated Thermal Discharge**

EPA characterizes the potential impacts of the heated effluent discharged from PNPS in detail in Attachments B (“Outline of §316(a) Determination Decision Criteria”) and C (“MassDEP Assessment of Impacts to Marine Organisms from the Pilgrim Nuclear Thermal Discharge and Thermal Backwash”) to the fact sheet. Based on this analysis, EPA determined that the temperature limits in the current permit are protective of the balanced, indigenous population and has granted PNPS a variance from technology- and water quality-based temperature limits. Under the draft permit, PNPS may discharge up to 447 MGD of non-contact condenser cooling water heated to a maximum daily temperature of 102°F and a maximum rise in temperature of 32°F from Outfall 001 to Cape Cod Bay. The draft permit also authorizes the discharge of heated backwash water from Outfall 002 to the intake bay and out to the embayment. Thermal backwashes are intermittent.

Attachment C to the Fact Sheet characterizes the thermal plume, which changes throughout the tidal cycle and with ambient temperature. The analysis provided in Attachment C is consistent with the evaluation of the thermal plume in the 2012 ESA Consultation Letter (p. 17). At high tide, the plume is confined to the surface layer (to a depth ranging from 3 to 8 feet below the surface) and spreads from the point of release. Studies on the shape and dimensions of the plume suggest that, under worst case conditions, the area where water temperatures are at least 1°C (1.8°F) above ambient could extend to 3,000 acres, or about 0.8% of the surface area of Cape Cod Bay. In



November, when ambient temperatures are cooler, the extent of the plume at temperatures at least 3°C (5.4°F) above ambient is 56 acres; the plume extends to 138 acres in July when ambient temperatures are higher.

At low tide, elevated temperatures are present near the discharge canal and the plume contacts the bottom. The maximum areal extent of the plume at temperatures greater than 1°C (1.8°F) above ambient is 1.2 acres. The maximum linear extent of the 1°C isotherm in contact with the bottom is about 170 m (560 ft) and the bottom area with the maximum recorded rise in temperature (9°C or 16.2°F) was limited to less than 0.13 acres.

EPA concludes that the thermal plume from PNPS is relatively small compared to the receiving water and dissipates rapidly. It is predominantly a surface plume that moves with the tides and the wind. Minor impacts to the macroalgal community have been documented that can be attributed to the thermal plume, but this area is only roughly one acre in size. Thus, from a retrospective analysis, the past forty (40) years of operation of PNPS—during which the thermal component of the discharge has remained the same—has been protective of the balanced indigenous population of fish, shellfish and wildlife, including species listed under the ESA, in the context of § 316(a).

In addition, NMFS, in its 2012 ESA Consultation for the relicensing of PNPS, likewise concluded that, even during the warmest months of the year, the surface and bottom area of the plume is small and that threatened and endangered species of whales are expected to be able to swim around or under the plume throughout the year. As a result, any avoidance of the relatively small plume would not result in the disruption or delay in any essential behaviors that these species may be carrying out in the action area, including foraging, migrating, or resting. *See* 2012 ESA Consultation letter, 18-19. The dimensions of the plume do not extend into designated critical habitat for North Atlantic right whale, therefore, there will be no direct effects to critical habitat. Similarly, threatened and endangered species of sea turtles present in the action area would also be able to avoid the plume by swimming around or under it and the plume will not disrupt or delay any essential behaviors, including foraging, migrating, or resting. NMFS also considered the potential for the risk of cold-stunning of sea turtles, in which turtles attracted by the plume remain in the action area so long that they risk becoming incapacitated when the contact colder ambient temperatures outside the plume. *Id.* at 20. NMFS concluded that the thermal plume is limited sufficiently spatially and temporally that it is extremely unlikely that sea turtles would seek out and use the plume as refuge from falling temperatures such that it would increase vulnerability to cold stunning. *Id.*

NMFS also considered if the thermal plume would be likely to affect Atlantic sturgeon in the action area. At high tide, when the thermal plume is confined to the surface, the normal behavior of Atlantic sturgeon as benthic-oriented fish is likely to limit exposure to the plume and fish that may be near the surface are likely to be able to avoid the relatively small area where ambient temperature are warmest (11.25 acres). At low tide, Atlantic sturgeon are likely to be able to avoid bottom waters with elevated temperatures by swimming around it. NMFS also determined that it is extremely



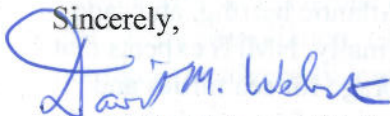
Intake Structure Technologies and Determination of Best Technology Available Under CWA § 316(b)”).

The draft permit requires a 96% reduction in cooling water withdrawals from Cape Cod Bay and prohibits cooling water withdrawals for the main condenser effective upon terminating electrical generation at the plant and no later the June 1, 2019. This reduction in cooling water will effectively reduce entrainment by 96%. In addition, the draft permit requires PNPS to achieve a through-screen velocity no greater than 0.5 fps at the traveling screens. Based on the 2012 ESA Consultation and information reviewed and assessed in development of the draft permit, the effects of the continued operation of PNPS at the current levels of seawater withdrawal and intake velocity on listed species are likely to be insignificant. The substantial reduction in both cooling water withdrawals and intake velocity as a result of terminating electrical generation will further reduce any potential impacts to listed species from entrainment and impingement.

### Conclusions

Based on the analysis that all effects of the proposed action will be insignificant and/or discountable, we have determined that the renewal of the PNPS NPDES permit may affect, but is not likely to adversely affect, any listed species or critical habitat under NMFS' jurisdiction. This finding is consistent with the conclusion NMFS reached in 2012 during consultation with the NRC for relicensing PNPS. A more detailed analysis of the effects summarized above is discussed in Attachments B, C, and D to the 2016 fact sheet and in the 2012 ESA Consultation letter. During the public comment period, EPA has provided a copy of the draft permit and fact sheet to both NMFS and USFWS. We request your concurrence with this determination.

Sincerely,



David M. Webster, Chief  
Water Permits Branch  
Office of Ecosystem Protection

cc: Christine Vaccaro, NMFS



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